
Injectable, autologous iPSC-based therapy for spinal cord injury

Grant Award Details

Injectable, autologous iPSC-based therapy for spinal cord injury

Grant Type: Quest - Discovery Stage Research Projects

Grant Number: DISC2-13020

Investigator:

Name:	Sarah Heilshorn
Institution:	Stanford University
Type:	PI

Disease Focus: Neurological Disorders, Spinal Cord Injury

Human Stem Cell Use: iPS Cell

Award Value: \$789,000

Status: Pre-Active

Grant Application Details

Application Title: Injectable, autologous iPSC-based therapy for spinal cord injury

Public Abstract:**Research Objective**

We propose to develop and validate a therapy for spinal cord injuries in which human stem cell-derived neural cells is injected into the injured spinal cord using an injectable gel.

Impact

Our study will address the critical need for an SCI treatment that significantly improves the neurological recovery and hence quality of life of SCI patients and their caretakers.

Major Proposed Activities

- We will determine if delivering human iPSC-derived neural cells within our injectable gels will improve its ability to graft into and regenerate the injured spinal cord, as compared to saline.
- We will evaluate if the differences observed in Activity 1 is correlated to differences observed in the functional improvement of the different treatment groups.
- Using multiple stem cell clones from the same donor as well as from distinct donors, we will evaluate what fraction of clones can pass multiple quality control criteria.
- We will evaluate if distinct stem cell clones from different individuals can yield similar functional benefits when used to treat spinal cord injuries in rodents.
- We will evaluate if different stem cell clones from the same individual can yield similar functional benefits when used to treat spinal cord injuries in rodents.

Statement of Benefit to California:

An estimated 17,900 cases of spinal cord injury are diagnosed in the United States annually, with an estimated lifetime cost of at least \$1,217,266 per patient. As the state with the largest population number, California is most significantly affected by SCIs. The success of our proposed research will significantly improve neurological and functional recovery in these patients, enhancing their quality of life, and reducing the economic and public health burden of the disease.

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